DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AEROSPACE DEFENSE COMMAND
ENT AIR FORCE BASE COLORADO 80912

REQUIRED OPERATIONAL CAPABILITY (ROC)

Subject: Anti-Satellite Weapon System

Preparing Office

Missile and Space Weapons Division
Directorate of Missile and Space Defense
Deputy Chief of Staff/Plans
Headquarters Aerospace Defense Command

Symbol: ADLMD-W

ROC NO. ADC-18-68

10 September 1968

LMD-8-197

I. DEFICIENCIES/NEEDS. The Aerospace Defense Command cannot adequately discharge United States Air Force responsibilities for space defense of the United States nor can it provide adequate forces for space defense of overseas areas as required. An integrated space defense system is needed which can reduce or nullify the effects of hostile acts by space vehicles after they leave the earth's surface. (Reference AFR 23-9). One required segment of this space defense system is an improved active anti-satellite weapon system.

II. REQUIRED OPERATIONAL CAPABILITY. To discharge Air Force responsibilities for space defense, ADC requires the capability to detect, perform mission assessment, and nullify hostile space vehicles in sufficient time to prevent or limit damage to the areas to be defended.

III. DETERMINATION OF DEFICIENCIES/NEEDS AND THE REQUIRED OPERATIONAL CAPABILITY. The Required Operational Capability is substantiated by the following intelligence data:

A. Evidence of Soviet interest in orbital bombardment systems dates from Krushchev's remarks in early 1962 and subsequent references to "global rockets" and "orbital missiles." These can be interpreted to refer to either or both of two concepts which have come to be called "fractional orbit bombardment system" (FOBS) and "multiple orbit bombardment system" (MOBS).

b(1)

B. The Soviets could employ a non-reentry variant of the FOBS which would detonate its warheads in orbit or following a partial reentry. These non-reentry FOBS would require little or no retropropulsion and, therefore, could carry much heavier warheads than the reentry types of comparable mass.

b(1)

C. It can be presumed that high altitude nuclear detonations could degrade radio and radar transmissions on all frequency bands, damage inadequately shielded electronic circuitry and communications cables, affect information stored in the missile computer memory cores, and perhaps reduce the reliability of some of the US retaliatory strike elements. In addition, the non-reentry FOBS could deprive some of the ground based anti-satellite defenses of atmospheric filtration, which is a very valuable phenomenon for the discrimination between the reentering payloads and the reentering decoys or debris. (NORIP-67)

D. Experience gained from the design and development of the FOBS could lead to a more complex multi-orbit bombardment system (MOBS). These second generation offensive space weapons would orbit the earth for days, weeks, or perhaps months at a time; the prime considerations in their design would be orbital lifetime, targeting capability, vulnerability to enemy counteractions, and the availability of a reliable command and control network. (NORIP-67)

E. In comparison with FOBS, the MOBS concept generates more stringent command and control requirements; however, it adds a new dimension to the Soviet strike capability. A squadron of MOBS could be used either in a first strike or a second strike

role. In a first strike role, such a strike force would be gradually deployed and stored in orbit days or weeks ahead of a premeditated attack, and detonate its warheads on command at predetermined intervals over the U.S. ICBM deployment areas. It is surmised that these detonations could cause the U.S. to delay the retaliatory launch of its ICBMs or disable the U.S. missiles during the powered flight phase through the nuclear environment. In the second strike role, the Soviet MOBS force could be used as a deterrent against the U.S. retaliatory attack. In this case, MOBS would be launched at the outbreak of war with the view of acquiring an intra-war or post-war assured destruction capability. Such a capability, if attained, could be used by the USSR to deter the renewal of hostilities or stop the war short of mutual destruction. Another important attribute inherent in a MOBS system is that its vehicle, operating under positive control, could either be dumped into the ocean or recalled and recovered within the confines of the Soviet landmass in a fail-safe manner. (NORIP-67)

F. There are several techniques which the Soviets could employ to enhance the effectiveness of the MOBS concept. One of these techniques would result in a near-simultaneous deorbit of all or some of the orbital bombs over widely separated areas of North America. Since this near-simultaneous deorbit technique is based on a predetermined sequential launch, it is surmised that the Soviets could implement it by 1970 or 1972. Another MOBS concept would use highly eccentric orbits, such as the ones which have already been demonstrated by the MOLNIYA communications satellites. The Soviets could place warheads into 12-hour eccentric orbits, and then deorbit them on command onto the assigned targets b(1)

Such eccentric orbit bombardment systems could provide the USSR with a highly advanced orbital deterrent system which would be very difficult to detect and identify by the present NORAD early warning sensors. A prototype testing of a USSR eccentric orbit bombardment system could begin by about 1973 or 1974, and it could attain a limited operational capability as early as 1975. (NORIP-67)

G. A large proportion of the space payloads launched by the USSR has been of military significance or readily adaptable for military purposes. These include photoreconnaissance, communications, weather surveillance, electronic surveillance, navigation, and satellite systems. Other military space vehicles that may be developed in the USSR will be governed by a number of considerations, including ability to cope with problems inherent in the new medium; breakthroughs in science and technology; predicated cost effectiveness in comparison with alternative systems; Soviet estimates of U.S. trends and intentions; and, possibly, the world political climate and the spirit of international agreements concerning the use of space.

b(1)

IV. OPERATIONAL CONSIDERATIONS.

A. The Anti-Satellite Weapon System must comply with the provisions of the "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies." This treaty seeks to preclude the placing in orbit or stationing in space of any nuclear weapon or other weapon of mass destruction. The treaty provides that outer space activities will be in accord with recognized concepts of international law, among which are the rights of retaliation and of self defense.

B. The system will be maintained and operated by the Aerospace Defense Command.

C. The system will interface and be compatible with other aerospace forces to include command, control, communications, and other components of battle management.

D. Decision making capability to employ the Anti-Satellite Weapon System must be compatible with weapon system reaction time.

E. A damage assessment capability should be included in the system.

F. Mobility, vulnerability, and survivability should be considered during system design.

G. The Anti-Satellite Weapon System must be capable of nullifying any satellite with a direct military application.

H. The weapon system should be capable of nullifying satellites as early as possible in their trajectories in order to prevent or limit damage to the areas to be defended.

I. It is desirable that advanced anti-satellite systems be manned, to capitalize upon the decision-making capabilities inherent in having man in the loop.

V. HARMONIZATION. This ROC will be coordinated with other major air commands and military services. This is required because of its overall impact on defense of the United States and its significant contribution to the United States' strategic deterrent posture.

	Copies
A. Action Copies	
Hq USAF (AFRDQ-P)	25
Hq USAF (AFRDR)	25
B. Information Copies:	
AAC (ALDXP-3A), APO Seattle Wash 98742	3
AFCS (CSXRQM), Scott AFB, Ill 62225	6
AFSC (SCL), Andrews AFB, Wash D.C. 20331	15
ARRS, Orlando AFB, Fla 32813	6
ATC (ATXRQ), Randolph AFB, Tex 78148	3
MAC (MAORD), Scott AFB, Ill 62225	6
CONAC (DCS/TP), Robins AFB, Ga 91093	3
CINCPACAF, APO San Francisco 96553	6
USAFSO, APO New York 09825	3
USAFSS (OOP), San Antonio, Tex 78241	3
TAC (DIP), Langley AFB, Va 23365	3
SAC (DDPL), Offnutt AFB, Neb 68113	3
ADSO, Los Angeles AFS, AF Unit PO, Los Angeles, Calif 90045	1
ANDSO, Wright-Patterson AFB, Ohio 45433	1
ADSWO, Kirtland AFB, NM 87117	1
CCDSO, L G Hanscom Fld, Bedford, Mass 01730	1
14 Aerosp Force (COP-W), Ent AFB, Colo 80912	4
AFPT, Wright-Patterson AFB, Ohio 45433	1
SAMSO (SMASB, SMTAX, SMAO, SMUJ), AF Unit PO, Los Angeles, Calif 90045	4
C. Harmonization Copies:	
CINCPAC, APO San Francisco 96553	6
CINCONAD (CPSD-W), Ent AFB, Colo 80912	6
CINCSTRIKE, MacDill AFB, Fla 32608	6
USCINCSO, APO New York 09826	6
CINCLANT, US Naval Base, Norfolk, Va 23365	6
CINCAL, APO Seattle, Wash 98742	6
The Deputy Chief of Naval Operations (Development) (OP-701) Navy Department, Wash D.C. 20350	3

The Commandant US Marine Corps (Code: AX), Navy Department Wash D.C. 20380	1
Director, Landing Force Development Center, Marine Corps School Quantico, Va 22134	1
The Commanding General, US Army Combat Developments Command Fort Belvoir, Va 22060	6
The Chief of Research and Development Chief of Plans Division, Department of the Army, Wash D.C. 20310	2

D. ADC Internal:

ADLMD	2
ADOOP	2
ADABF	1
ADCIG	1
ADCMO	1
ADCJA	1
ADCSA	1
ADEEP	1
ADMLP	1
ADMME	1
ADMSS	1
ADOAC	1
ADOTT	1
ADPDP	1
ADOIN	1
ADLMD-W	10
TOTAL	200